


a first photodetector configured to sense a first optical signal having a first data rate, and generate a first electrical signal in response thereto;

an electrical demultiplexing circuit having an input coupled to said first photodetector and a plurality of outputs, said electrical demultiplexing circuit generating each of a plurality of second electrical signals at a respective one of said plurality of outputs in response to said first electrical signal;

 a plurality of first optical transmitters, each of which being respectively coupled to a respective one of said plurality of outputs of said electrical demultiplexing circuit, said plurality of first optical transmitters generating a plurality of second optical signals, each at a respective one of a plurality of wavelengths and in response to a respective one of said plurality of second electrical signals, at least one of said plurality of second optical signals having a second data rate less than said first data rate;

a plurality of second photodetectors, each of which being configured to sense a respective one of said plurality of second optical signals, and generate a respective one of a plurality of third electrical signals in response thereto;

an electrical multiplexing circuit having a plurality of inputs, each of which being coupled to a respective one of said second plurality of photodetectors, and an output supplying a fourth electrical signal in response to said plurality of third electrical signals;

a second optical transmitter emitting a third optical signal at a third data rate.

8. An optical communication apparatus in accordance with claim 7, further comprising:

an optical multiplexer coupled to said plurality of first optical transmitters, said optical multiplexer being configured to direct said plurality of second optical signals onto an optical communication path.

9. An optical communication apparatus in accordance with claim 8, wherein said optical communication path comprises an optical waveguide.

10. An optical communication apparatus in accordance with claim 7, wherein said first and third data rates are substantially equal to an OC-192 data rate, and said second data rate is substantially equal to an OC-48 data rate.

11. An optical communication apparatus in accordance with

claim 8, further comprising:

an optical demultiplexer having an input coupled to said optical communication path and a plurality of outputs, each of which being coupled to a respective one of said plurality of second photodetectors, said optical demultiplexer supplying a respective one of said plurality of second optical signals to said second photodetectors via a respective one of said plurality of outputs of said optical demultiplexer.

12. An optical communication apparatus in accordance with claim 11, wherein said optical demultiplexer further comprises:

an optical splitter having an input coupled to said optical communication path, and a plurality of outputs;

a plurality of optical selectors, each of which respectively coupled to one of said plurality of outputs of said optical splitter, each of said plurality of optical selectors supplying a corresponding one of said plurality of second optical signals to a respective one of said plurality of second photodetectors.

13. An optical communication apparatus in accordance with claim 7, wherein said third data rate is higher than said second data rate.--